

Please replace the paragraph beginning at page 12, line 11, with the following rewritten paragraph:

C³ -- At this point, as also shown in Figure 4, a capping layer 46, comprising, for example, conventional silicon oxide as used for dielectric barrier layer 6, could be deposited over low k dielectric layer 40 as a protective layer followed by deposition of resist mask 50 over protective capping layer 46. Capping layer 46 may then be selectively etched through resist mask 50 to form a hard mask in capping layer 46, followed by removal of resist mask 50 before the etching of second low k dielectric layer 40, thereby protecting low k layer 40 from the processing used to remove resist mask 50, as in the previous embodiment. This selective etching of protective capping layer 46 can also be carried out, when capping layer 46 comprises silicon oxide or silicon carbide, using the previously described fluorocarbon/hydrofluorocarbon etch to etch away substantially all of the exposed capping layer 46 beneath resist mask 50. --

In the Claims:

Please cancel claims 4-5, 13-14, and 16-21.

Please amend claims 1-3, 6, 11, and 15 as follows:

1. (Amended) A process for forming an integrated circuit structure having at least one layer of low k dielectric material therein and a layer, formed from said low k dielectric material, suitable for use as an etch stop and/or an etch mask which consists essentially of:

- CA
- a) forming a first layer of low k dielectric material over a previously formed integrated circuit structure; and
 - b) then, prior to any exposure of said first layer of low k dielectric material to etchants, treating the upper surface of said first layer of low k dielectric material with a plasma formed from a non-oxidizing gas to form a first layer of densified dielectric material over the remainder of the underlying first layer of low k dielectric material;

whereby said first layer of densified dielectric material is capable of serving as a etch stop and/or an etch mask for subsequent etching of said underlying first layer of low k dielectric material.

2. (Amended) The process of claim 1 including the further steps of:

- Concluded*
CSH
- a) forming a first photoresist mask with a first pattern of openings therein over said first layer of densified dielectric material; and
 - b) patterning said first layer of densified dielectric material through said first openings in said first photoresist mask to form a first etch mask layer of densified dielectric material having a pattern of openings in said first etch mask layer of densified dielectric material suitable for use in etching a corresponding pattern of openings in said underlying first layer of low k dielectric material.

3. (Amended) The process of claim 22 including the further step of etching said pattern of openings in said first layer of low k dielectric material through said pattern of openings in said first etch mask layer of densified dielectric material thereon.

6. (Amended) A process for forming an integrated circuit structure having at least one layer of low k material therein and a layer, formed from a low k dielectric layer, suitable for use as an etch stop and/or an etch mask which comprises:

- C5
- a) forming a first layer of low k dielectric material over a previously formed integrated circuit structure; and
 - b) treating the upper surface of said first layer of low k dielectric material with a plasma formed from a non-oxidizing gas to form a first layer of densified dielectric material over the remainder of the underlying first layer of low k dielectric material whereby said first layer of densified dielectric material is capable of serving as an etch stop and/or an etch mask for etching of said underlying first layer of low k dielectric material;
 - c) forming a first photoresist mask over said first layer of densified dielectric material;
 - d) patterning said first layer of densified dielectric material through said first photoresist mask to form a first etch mask layer of densified dielectric material having a pattern of openings therein suitable for use in etching a corresponding pattern of openings in said underlying first layer of low k dielectric material;
 - e) removing said first photoresist mask;
 - f) forming a second layer of low k dielectric material over said first layer of densified dielectric material;
 - g) treating the upper surface of said second layer of low k dielectric material with a plasma formed from a non-oxidizing gas to form a second layer of densified dielectric material over the remainder of said second layer of low k dielectric material;
 - h) forming a second photoresist mask over said second layer of densified dielectric material;
 - i) patterning said second layer of densified dielectric material through said second photoresist mask to form a second etch mask layer of densified dielectric material over said second layer of low k dielectric material, said second etch mask layer of densified dielectric material having a pattern of openings therein suitable for use in etching a

corresponding pattern of openings in the underlying second layer of low k dielectric material;

j) removing said second photoresist mask;

k) etching a pattern of openings in said second layer of low k dielectric material through said pattern of openings in said second etch mask layer;

l) forming a pattern of openings in said first etch mask layer of densified dielectric material through said pattern of openings formed in said second layer of low k dielectric material; and

m) etching a pattern of openings in said first layer of low k dielectric material through said pattern of openings in said first etch mask layer of densified dielectric material.

11. (Amended) The process of claim 6 including the further steps of:

a) forming a third etch mask over said second etch mask layer of densified dielectric material, said third mask having openings larger than the openings in said pattern of openings in said second etch mask layer; and

b) etching said larger openings through:

i) said second etch mask layer of densified dielectric material; and

ii) said second layer of low k dielectric material;

down to said first etch mask layer of densified dielectric material;

whereby said structure will have a pattern of smaller openings formed in said first layer of low k dielectric material and a pattern of larger openings formed in said second layer of low k dielectric material and generally in registry with said pattern of smaller openings.

15. (Amended) The process of claim 22 including the further steps of:

- C7
- a) forming a second layer of low k dielectric material over said first layer of densified dielectric material;
 - b) treating the upper surface of said second layer of low k dielectric material with a plasma formed from a non-oxidizing gas to form a second layer of densified dielectric material over the remainder of said second layer of low k dielectric material; and
 - c) forming a second photoresist etch mask over said second layer of densified dielectric material;
 - d) patterning said second layer of densified dielectric material through said second photoresist mask to form a second etch mask layer of densified dielectric material over said second layer of low k dielectric material; and
 - e) then removing said second photoresist mask;

said second etch mask layer of densified dielectric material having a pattern of openings therein comprising openings larger than said openings in said first etch mask layer of densified material, said openings in said second etch mask layer of densified dielectric material in registry with said openings in said first etch mask layer of densified dielectric material.

Please add the following new claim:

C8

22. (New) The process of claim 2 including the further step of then removing said first photoresist mask from said first etch mask layer of densified dielectric material before etching said first layer of low k dielectric material.